

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-5. (Cancelled).

6. (Currently Amended) A method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film on an insulating surface;

providing a metal element being capable of promoting crystallization of the amorphous semiconductor film to form a first metal element added region and a second metal element added region;

crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patterned the crystalline semiconductor film to form at least one crystalline semiconductor island of a functional array of semiconductor islands using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the functional array of semiconductor islands,

wherein the second crystalline portion is located between the crystalline semiconductor island and the second metal element added region, and

wherein the first metal element added region is away from the second metal element added region.

7. (Previously Presented) The method according to claim 6,

wherein lengths of the first metal element added region and the second element added region are set to 50% or more of a crystal growth distance.

8. (Previously Presented) The method according to claim 6,
wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

9. (Currently Amended) A method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film on an insulating surface;
providing a metal element being capable of promoting crystallization of the amorphous semiconductor to form a first metal element added region and a second metal element added region;

crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patterning the crystalline semiconductor film to form at least one crystalline semiconductor island of a functional array of semiconductor islands, using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the functional array of semiconductor islands,

wherein the second crystalline semiconductor region is located at a peripheral edge of the functional array of semiconductor islands, and

wherein the first metal element added region is away from the second metal element added region.

10. (Previously Presented) The method according to claim 9,

wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

11. (Previously Presented) The method according to claim 9,
wherein the metal element is provided by an ion implanting method.
12. (Previously Presented) The method according to claim 9,
wherein the metal element is provided by coating a solvent comprising the metal element.
13. (Cancelled).
14. (Previously Presented) The method according to claim 9,
wherein the amorphous semiconductor film comprises silicon.
15. (Previously Presented) The method according to claim 9,
wherein the semiconductor device includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.
16. (Previously Presented) The method according to claim 9,
wherein the semiconductor device includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.
17. (Cancelled).

18. (Previously Presented) The method according to claim 6,
wherein the amorphous semiconductor film comprises silicon.

19. (Cancelled).

20. (Previously Presented) The method according to claim 6,
wherein the semiconductor device includes at least one selected from the group
consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec
while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

21. (Previously Presented) The method according to claim 6,
wherein the semiconductor device includes at least one selected from the group
consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec
while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

22. (Cancelled).

23. (Previously Presented) The method according to claim 9,
wherein crystal growth state is controlled by the second metal element added region.

24. (Currently Amended) A method of manufacturing a semiconductor device, said
method comprising:
forming an amorphous semiconductor film on an insulating surface;
providing a metal element being capable of promoting crystallization of the amorphous
semiconductor film to form a first metal element added region and a second metal element added
region;

crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patterning the crystalline semiconductor film to form at least one crystalline semiconductor island of a functional array of semiconductor islands using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the functional array of semiconductor islands,

wherein the second crystalline portion extends along an entire length of the second metal element added region, and

wherein the first metal element added region is away from the second metal element added region.

25. (Previously Presented) The method according to claim 24,

wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

26. (Previously Presented) The method according to claim 24,

wherein the metal element is provided by an ion implanting method.

27. (Previously Presented) The method according to claim 24,

wherein the metal element is provided by coating a solvent comprising the metal element.

28. (Previously Presented) The method according to claim 24,

wherein the amorphous semiconductor film comprises silicon.

29. (Previously Presented) The method according to claim 24,

wherein the semiconductor device includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

30. (Previously Presented) The method according to claim 24,
wherein the semiconductor device includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

31. (Currently Amended) A method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film on an insulating surface;
providing a metal element being capable of promoting crystallization of the amorphous semiconductor film to form a first metal element added region and a second metal element added region;
crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patterned the crystalline semiconductor film to form at least one crystalline semiconductor island of a group of active elements using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the group of active elements,

wherein the second crystalline portion is located between the crystalline semiconductor island and the second metal element added region, and

wherein the first metal element added region is away from the second metal element added region.

32. (Previously Presented) The method according to claim 31,
wherein lengths of the metal element added regions are set to 50% or more of a crystal growth distance.

33. (Previously Presented) The method according to claim 31,
wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

34. (Previously Presented) The method according to claim 31,
wherein the metal element is provided by an ion implanting method.

35. (Previously Presented) The method according to claim 31,
wherein the metal element is provided by coating a solvent comprising the metal element.

36. (Previously Presented) The method according to claim 31,
wherein the amorphous semiconductor film comprises silicon.

37. (Previously Presented) The method according to claim 31,
wherein the semiconductor device includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

38. (Previously Presented) The method according to claim 31,

wherein the semiconductor device includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,

wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

39. (Previously Presented) The method according to claim 31,

wherein crystal growth state is controlled by the metal element added region that is not used to form crystalline semiconductor islands.

40. (Currently Amended) A method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film on an insulating surface;

providing a metal element being capable of promoting crystallization of the amorphous semiconductor film to form a first metal element added region and a second metal element added region;

crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patternning the crystalline semiconductor film to form at least one crystalline semiconductor island of a group of active elements using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the group of active elements,

wherein the second crystalline portion is located at a peripheral edge of the group of active elements, and

wherein the first metal element added region is away from the second metal element added region.

41. (Previously Presented) The method according to claim 40,

wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

42. (Previously Presented) The method according to claim 40,
wherein the metal element is provided by an ion implanting method.

43. (Previously Presented) The method according to claim 40,
wherein the metal element is provided by coating a solvent comprising the metal element.

44. (Previously Presented) The method according to claim 40,
wherein the amorphous semiconductor film comprises silicon.

45. (Previously Presented) The method according to claim 40,
wherein the semiconductor device includes at least one selected from the group
consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec
while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

46. (Previously Presented) The method according to claim 40,
wherein the semiconductor device includes at least one selected from the group
consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec
while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

47. (Previously Presented) The method according to claim 40,
wherein crystal growth state is controlled by the metal element added region that is not
used to form crystalline semiconductor islands.

48. (Currently Amended) A method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film on an insulating surface;

providing a metal element being capable of promoting crystallization of the amorphous semiconductor film to form a first metal element added region and a second metal element added region;

crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patterning the crystalline semiconductor film to form at least one crystalline semiconductor island of a group of active elements using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the group of active elements,

wherein the second crystalline portion extends along an entire length of the second metal element added region, and

wherein the first metal added region is away from the second metal element added region.

49. (Previously Presented) The method according to claim 48,

wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

50. (Previously Presented) The method according to claim 48,

wherein the metal element is provided by an ion implanting method.

51. (Previously Presented) The method according to claim 48,

wherein the metal element is provided by coating a solvent comprising the metal element.

52. (Previously Presented) The method according to claim 48,
wherein the amorphous semiconductor film comprises silicon.

53. (Previously Presented) The method according to claim 48,
wherein the inverter circuit includes at least one selected from the group consisting of an
n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec
while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

54. (Previously Presented) The method according to claim 48,
wherein the inverter circuit includes at least one selected from the group consisting of an
n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec
while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

55. (Currently Amended) A method of manufacturing a semiconductor device, said
method comprising:

forming an amorphous semiconductor film on an insulating surface;
providing a metal element being capable of promoting crystallization of the amorphous
semiconductor film to form a first metal element added region and a second metal element added
region;

crystallizing the amorphous semiconductor film from the first metal element added
region and the second metal element added region in parallel to the substrate to form a first
crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor
film; and

patterning the crystalline semiconductor film to form at least one crystalline
semiconductor island of a functional array of semiconductor islands using the first crystalline

portion while the second crystalline portion is not used to form any crystalline semiconductor island of the functional array of semiconductor islands,

wherein the second crystalline portion is located between the crystalline semiconductor island and the second metal element added region,

wherein the first metal element added region is away from the second metal element added region, and

wherein the crystalline semiconductor island constitutes a TFT of an inverter circuit.

56. (Previously Presented) The method according to claim 55,

wherein lengths of the metal element added regions are set to 50% or more of a crystal growth distance.

57. (Previously Presented) The method according to claim 55,

wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

58. (Previously Presented) The method according to claim 55,

wherein the metal element is provided by an ion implanting method.

59. (Previously Presented) The method according to claim 55,

wherein the metal element is provided by coating a solvent comprising the metal element.

60. (Previously Presented) The method according to claim 55,

wherein the amorphous semiconductor film comprises silicon.

61. (Previously Presented) The method according to claim 55,

wherein the inverter circuit includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,

wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

62. (Previously Presented) The method according to claim 55,
wherein the inverter circuit includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,
wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

63. (Previously Presented) The method according to claim 55,
wherein crystal growth state is controlled by the metal element added region that is not used to form crystalline semiconductor islands.

64. (Currently Amended) A method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film on an insulating surface;
providing a metal element being capable of promoting crystallization of the amorphous semiconductor film to form a first metal element added region and a second metal element added region;

crystallizing the amorphous semiconductor film from the first metal element added region and the second metal element added region in parallel to the substrate to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film; and

patterning the crystalline semiconductor film to form at least one crystalline semiconductor island of a group of active elements using the first crystalline portion while the second crystalline portion is not used to form any crystalline semiconductor island of the group of active elements,

wherein the second crystalline portion is located between the crystalline semiconductor island and the second metal element added region,

wherein the first metal element added region is away from the second metal element added region, and

wherein the crystalline semiconductor island constitutes a TFT of an inverter circuit.

65. (Previously Presented) The method according to claim 64,

wherein the metal element comprises at least one selected from Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

66. (Previously Presented) The method according to claim 64,

wherein the metal element is provided by an ion implanting method.

67. (Previously Presented) The method according to claim 64,

wherein the metal element is provided by coating a solvent comprising the metal element.

68. (Previously Presented) The method according to claim 64,

wherein the amorphous semiconductor film comprises silicon.

69. (Previously Presented) The method according to claim 64,

wherein the inverter circuit includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,

wherein the n-channel thin film transistor has a first S value not higher than 90 mV/dec while the p-channel thin film transistor has a second S value not higher than 100 mV/dec.

70. (Previously Presented) The method according to claim 64,

wherein the inverter circuit includes at least one selected from the group consisting of an n-channel thin film transistor and a p-channel thin film transistor,

wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec while the p-channel thin film transistor has a second S value not lower than 75 mV/dec.

71. (Previously Presented) The method according to claim 64,
wherein crystal growth state is controlled by the metal element added region that is not used to form crystalline semiconductor islands.

72. (Previously Presented) The method according to claim 6,
wherein at least one of the metal element added regions has length extending 100 μ m or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

73. (Previously Presented) The method according to claim 9,
wherein at least one of the metal element added regions has length extending 100 μ m or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

74. (Previously Presented) The method according to claim 24,
wherein at least one of the metal element added regions has length extending 100 μ m or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

75. (Previously Presented) The method according to claim 31,
wherein at least one of the metal element added regions has length extending 100 μ m or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

76. (Previously Presented) The method according to claim 40,

wherein at least one of the metal element added regions has length extending 100μm or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

77. (Previously Presented) The method according to claim 48,
wherein at least one of the metal element added regions has length extending 100μm or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

78. (Previously Presented) The method according to claim 55,
wherein at least one of the metal element added regions has length extending 100μm or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.

79. (Previously Presented) The method according to claim 64,
wherein at least one of the metal element added regions has length extending 100μm or more longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the first metal element added region.